

Appl. No. 09/954,475
Amdt. Dated February 5, 2004
Reply to Office Action of November 5, 2003

Attorney Docket No. 81790.0211
Customer No.: 26021

LISTING OF THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of the claims present in the application:

1. (Currently Amended) A semiconductor laser device, comprising:
a semiconductor laser chip having a first surface of which shape is approximately rectangular or square, and having an emission facet for emitting a laser beam; and
a sub-mount having a first surface on which the semiconductor laser chip is provided, and at least one second surface vertical to the first surface, the first surface of the sub-mount having parallel first edges and parallel second edges between the first edges, the second edges being inclined at an angle of 3 to 30 degrees to the first edges, the first edges being parallel to the edges of the first surface of the semiconductor laser chip, at least one of the second edges being corresponding to the emission facet being inclined at an angle of 3 to 30 degrees to the emission facet,
wherein the one second surface including ~~at least~~ one of the second edges corresponding to the emission facet inclines along with the at least one of the second edges and reflects an incident light orthogonal to the emission facet of the semiconductor laser chip to a different direction in accordance with the angle of the second surface.
2. (Original) The device according to claim 1, wherein the angle of the second surface which is inclined is set to 3 to 15 degrees to the emission facet.
3. ~~(Canceled)~~
4. (Previously Amended) The device according to claim 1, wherein a shape of the first surface of the sub mount is a parallelogram.

5. (Canceled)

6. (Previously Amended) The device according to claim 1, wherein the semiconductor chip has a thickness of 60 to 150 μm .

7. (Previously Amended) The device according to claim 1, wherein material of the sub-mount is one of AlN, SiC, and Si.

8. (Canceled)

9. (Currently Amended) A semiconductor laser device comprising:
a semiconductor laser chip having a first surface of which shape is approximately rectangular or square, and having an emission facet for emitting two laser beams; and

a sub-mount having a first surface on which the semiconductor laser chip is provided, and at least one second surface vertical to the first surface, the first surface of the sub-mount having parallel first edges and parallel second edges between the first edges, the second edges being inclined at an angle of 3 to 30 degrees to the first edges, the first edges being parallel to the edges of the first surface of the semiconductor laser chip, at least one of the second edges being corresponding to the emission facet being inclined at an angle of 3 to 30 degrees to the emission facet,

wherein the one second surface including at least one of the second edges corresponding to the emission facet inclines along with the at least one of the second edges and reflects an incident light orthogonal to the emission facet of the semiconductor laser chip to a different direction in accordance with the angle of the second surface.

10. (Original) The device according to claim 9, wherein the semiconductor laser chip emits a first laser beam having a first wavelength and a second laser beam having a second wavelength.

11. (Original) The device according to claim 10, wherein the first wavelength band is 780 nm, and the second wavelength band is 650 nm.

12. (Original) The device according to claim 9, wherein the semiconductor laser chip has first and second electrodes, and the sub-mount has third and fourth electrodes connected with the first and second electrodes.

13. (Original) The device according to claim 12, the sub-mount has a slit between the third and fourth electrodes.

14. (Original) The device according to claim 9, wherein the angle of the second surface which is inclined is set to 3 to 15 degrees to the emission facet.

15. ~~(Canceled)~~

16. ~~(Canceled)~~

17. (Previously Amended) The device according to claim 9, wherein a plane shape of the semiconductor laser chip is a rectangle or square.

18. (Original) The device according to claim 17, wherein the semiconductor chip has a thickness of 60 to 150 μm .

19. (Previously Amended) The device according to claim 9, wherein material of the sub-mount is one of AlN, SiC, and Si.

20. ~~(Canceled)~~

21.

(Currently Amended) An optical pickup apparatus comprising:
a semiconductor laser device which emits a laser beam;
a diffraction grating which diffracts the laser beam from the semiconductor laser device and which outputs the laser beam and a sub-beam;
a collimator lens which makes the laser beam and the sub-beam from the diffraction grating be parallel to each other;
a half-mirror which allows the laser beam and the sub-beam from the collimator lens to pass;
an objective lens which guides the laser beam and the sub-beam from the half-mirror to an optical disk; and
a light receive element which receives reflection light from the optical disk through the objective lens and the half-mirror and, which converts the reflection light received into an electrical signal, wherein

the semiconductor laser device comprises a semiconductor laser chip having an emission facet for emitting a laser beam, and a sub-mount having a first surface on which the semiconductor laser chip is provided, and at least one second surface vertical to the first surface, ~~the one second surface, which is arranged in line with the emission facet of the semiconductor chip, is inclined at an angle of 3 to 30 degrees to the emission facet, and the one second surface which is inclined reflects an incident light orthogonal to the emission surface of the semiconductor laser chip~~ the first surface of the sub-mount having parallel first edges and parallel second edges between the first edges, the second edges being inclined at an angle of 3 to 30 degrees to the first edges, the first edges being parallel to the edges of the first surface of the semiconductor laser chip, one of the second edges being corresponding to the emission facet,

wherein the one second surface including one of the second edges corresponding to the emission facet reflects an incident light orthogonal to the emission facet of the semiconductor laser to a different direction in accordance with the angle of the second surface.

22. (Original) The apparatus according to claim 21, wherein the semiconductor laser chip emits a first laser beam having a first wavelength and a second laser beam having a second wavelength.

23. (Original) The apparatus according to claim 22, wherein the first wavelength band is 780 nm, and the second wavelength band is 650 nm.

24. (Original) The apparatus according to claim 21, wherein the semiconductor laser chip has first and second electrodes, and the sub-mount has third and fourth electrodes connected with the first and second electrodes.

25. (Original) The apparatus according to claim 24, the sub-mount has a slit between the third and fourth electrodes.

26. (Original) The apparatus according to claim 21, wherein the angle of the second surface which is inclined is set to 3 to 15 degrees to the emission facet.

27. (Original) The apparatus according to claim 21, wherein a plane shape of the sub-mount is a rectangle or square.

28. (Original) The apparatus according to claim 27, wherein a plane shape of the sub-mount is a parallelogram.

29-31. (Withdrawn)

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32. (Previously Presented) The device according to claim 1, further comprising a mount having a first surface on which the sub-mount is mounted, the first surface of the mount being a rectangle or square.

33. (Previously Presented) The device according to claim 32, wherein edges of the first surface of the mount which are parallel to each other are parallel to edges of the first surface of the sub-mount which are parallel to an optical axis of the laser beam.

34. (Previously Presented) The device according to claim 33, wherein the mount is a heatsink, and edges of the semiconductor laser chip which are parallel to each other are respectively parallel to edges of the heatsink.